



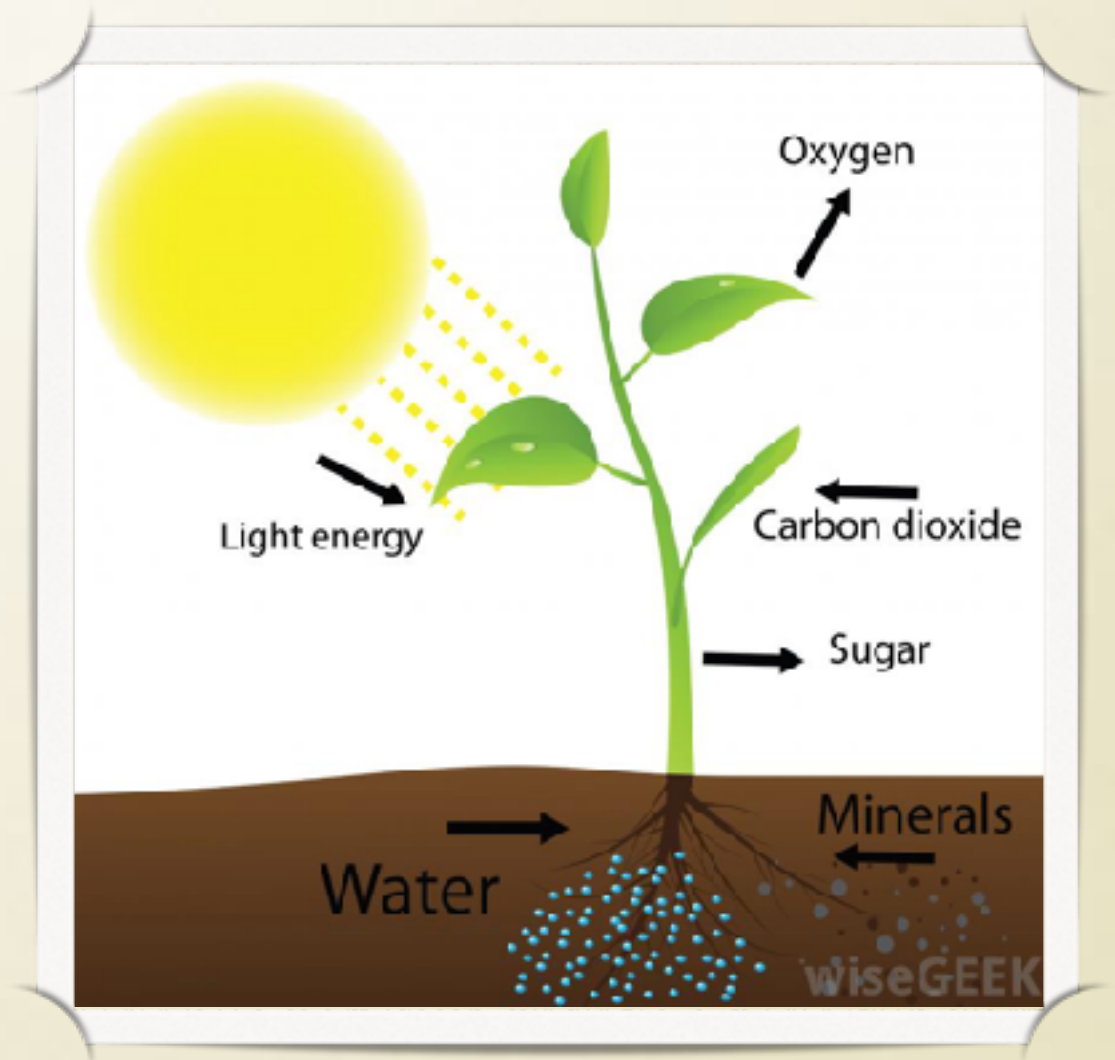
PHOTOSYNTHESIS

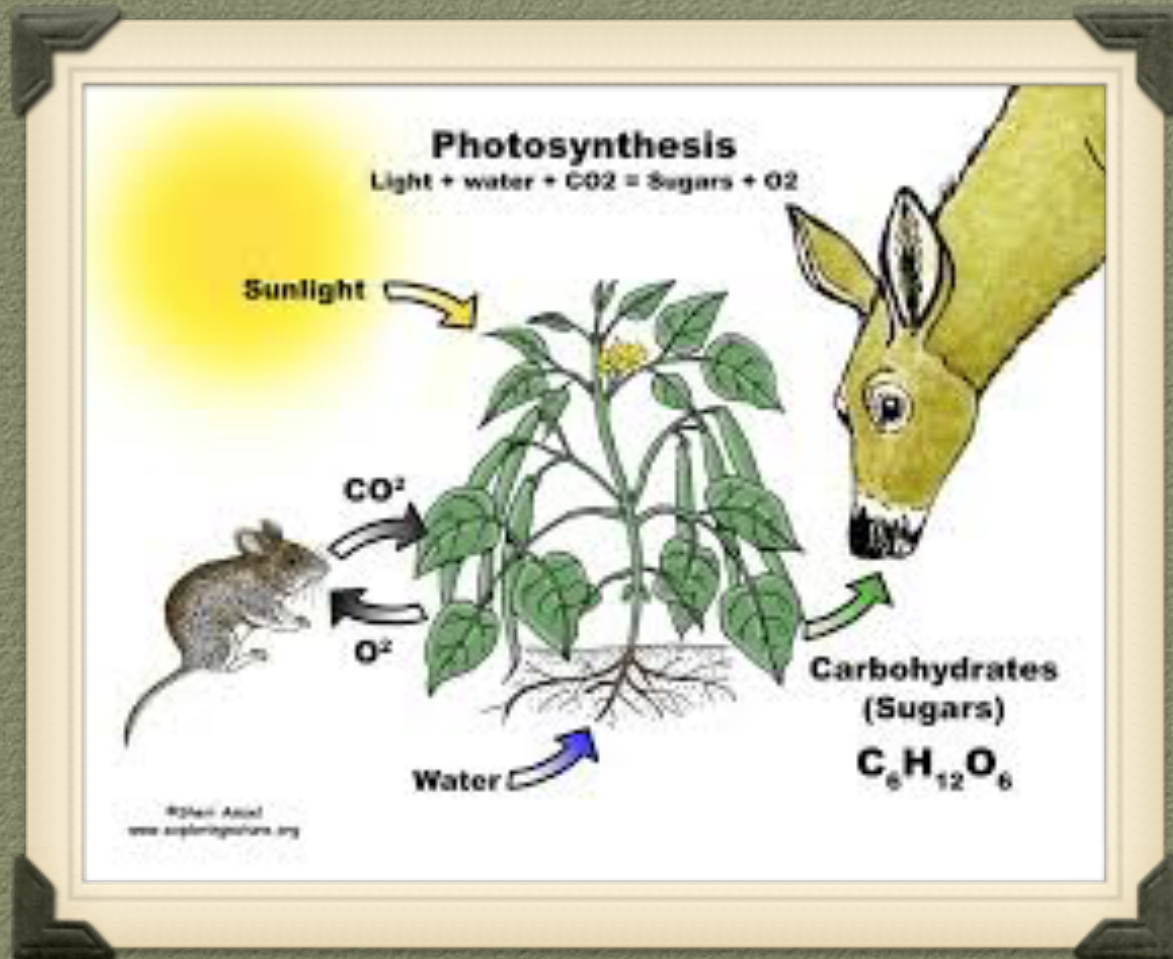
Using Sunlight for Energy

SOURCES OF ENERGY

The sun is the source of energy for most living things. All cells need energy to carry out their functions. The process by which a cell captures the energy in sunlight and uses it to make food is called photosynthesis.

Nearly all living things obtain energy either directly or indirectly from the energy of sunlight captured during photosynthesis.



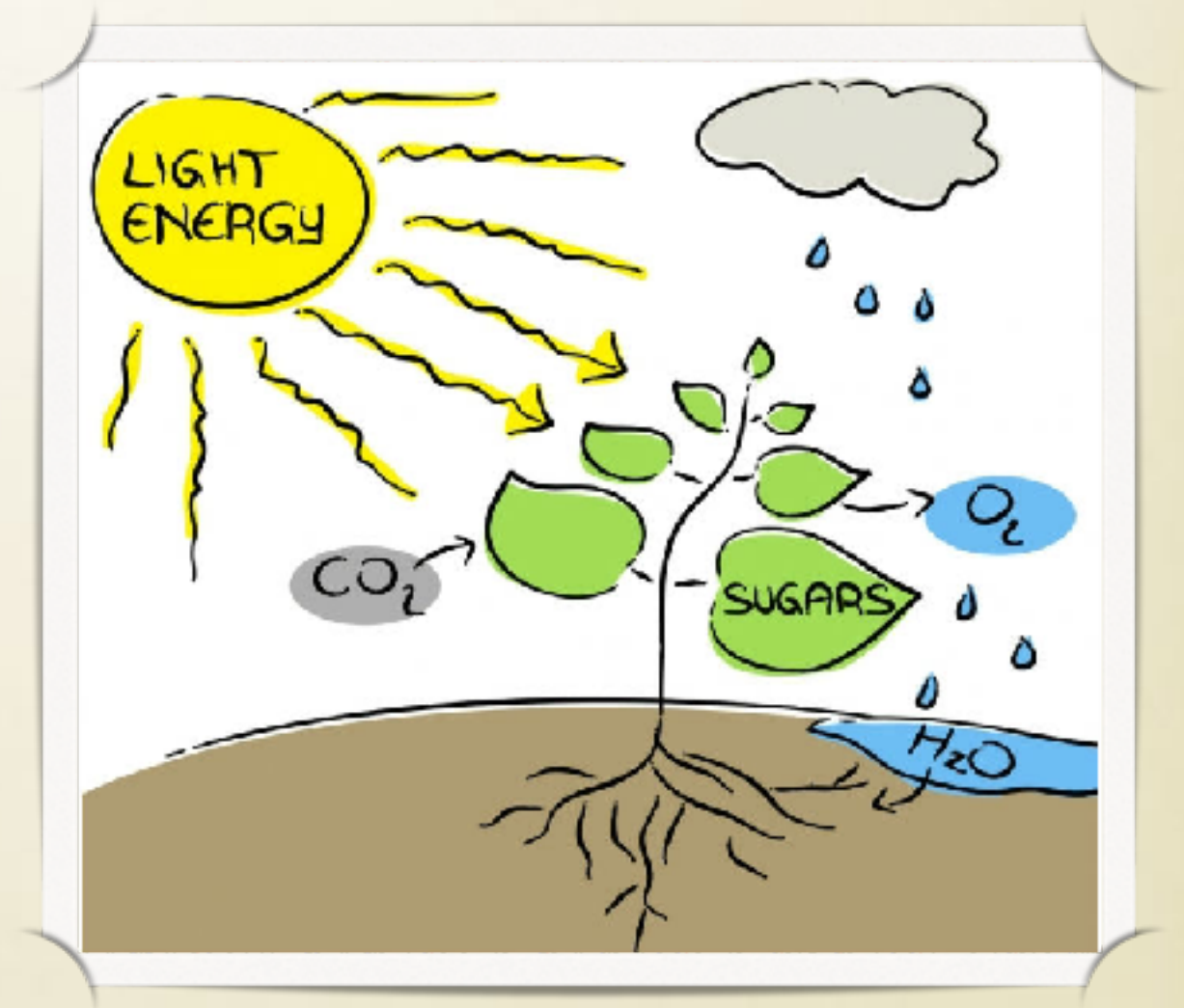


Plants, such as grass, use energy from the sun to make their own food this way.

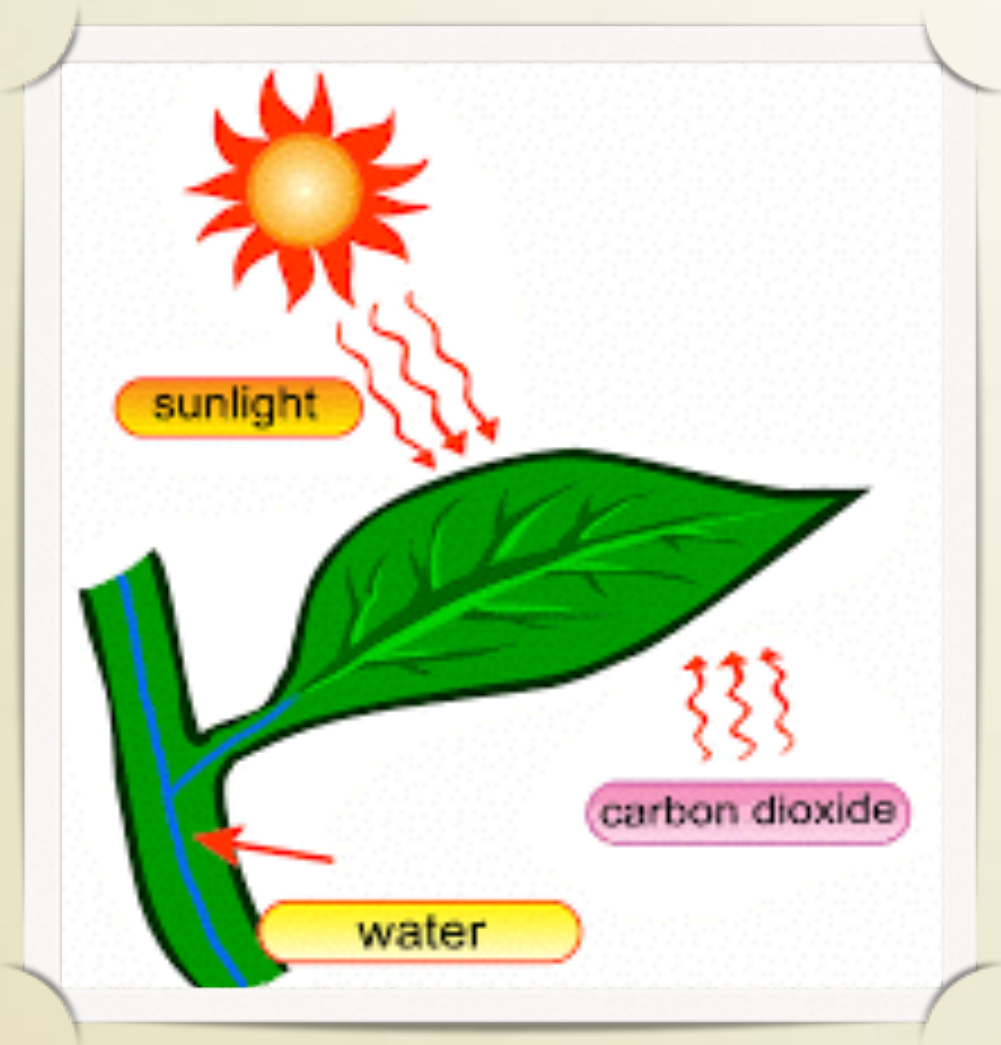
An organism that makes its own food is called an **autotroph**. An organism that can't make its own food is called a **heterotroph**. Many heterotrophs obtain food by eating other organisms.

TWO STAGES OF PHOTOSYNTHESIS

Photosynthesis is a complex process. During photosynthesis, plants and some other organisms use energy from the sun to convert carbon dioxide and water into oxygen and sugars.



PHOTOSYNTHESIS: STAGE 1



The first stage of photosynthesis involves capturing the energy in sunlight. In plants, this energy-capturing process occurs mostly in the leaves.

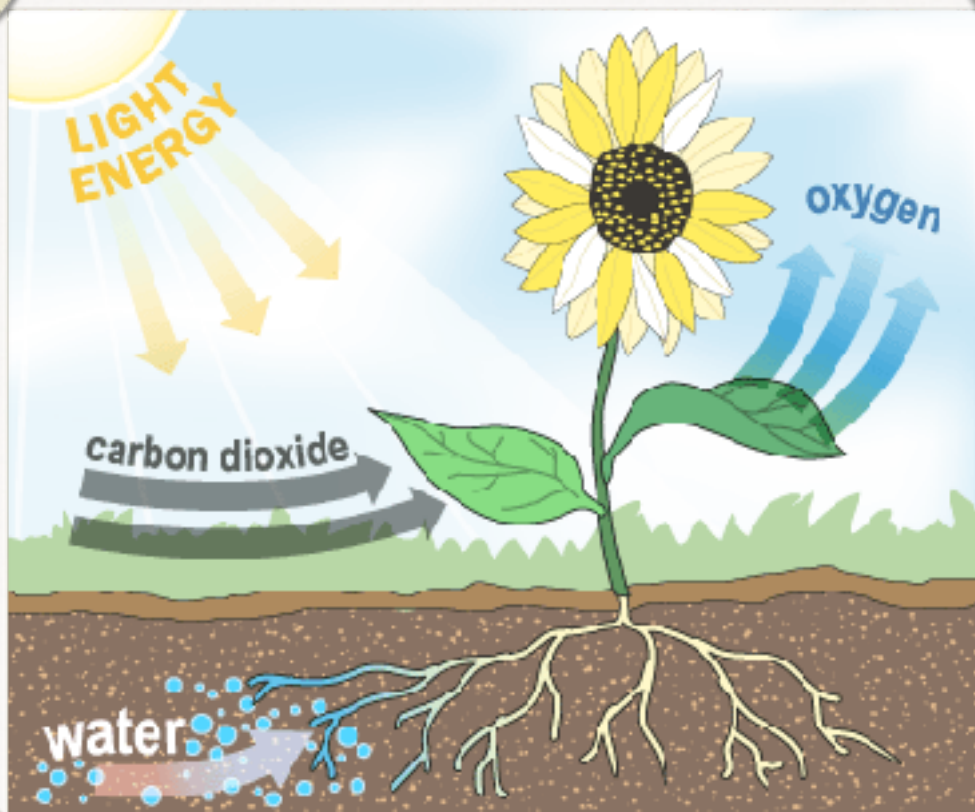
Remember that chloroplasts are green organelles inside plant cells. The green color comes from pigments, colored chemical compounds that absorb light. The main photosynthetic pigment in chloroplasts is chlorophyll.

CHLOROPHYLL

Chlorophyll captures light energy and uses it to power the second stage of photosynthesis to produce sugars.



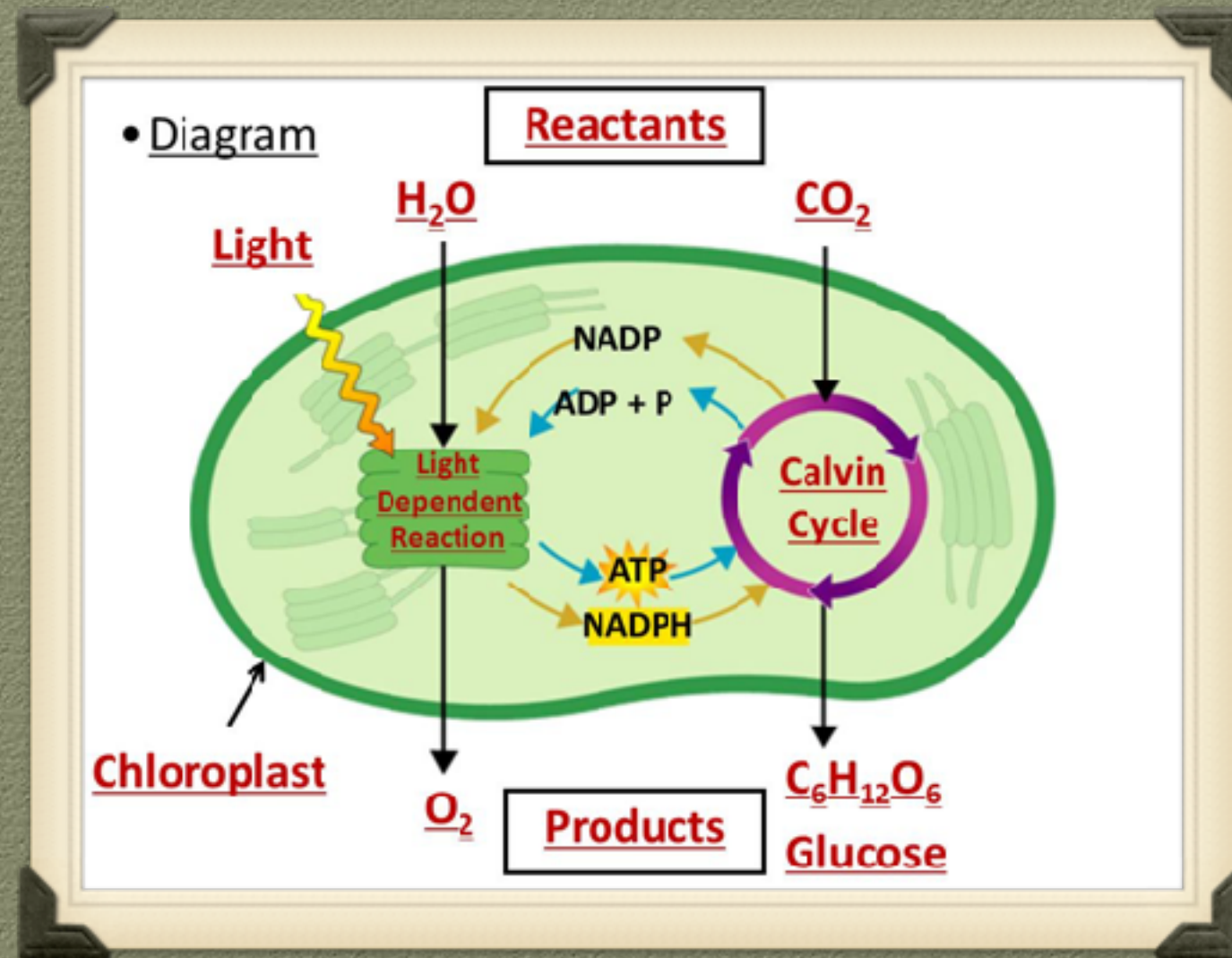
PHOTOSYNTHESIS: STAGE 2



The cell needs two raw materials for the second stage of photosynthesis to produce sugars: water (H_2O) and Carbon Dioxide (CO_2). Plant roots absorb water from the soil, and the water then moves up to the leaves.

Carbon Dioxide enters the plant through small openings on the undersides of the leaves called stomata. Once in the leaves, the water and carbon dioxide move into the chloroplasts.

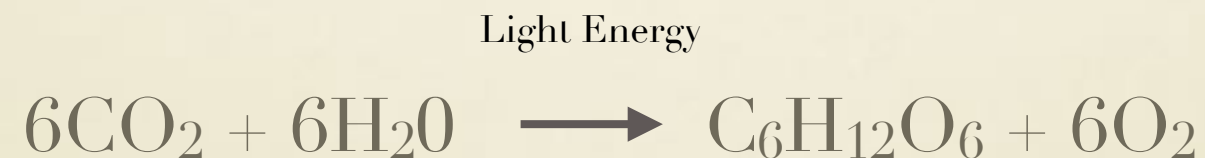
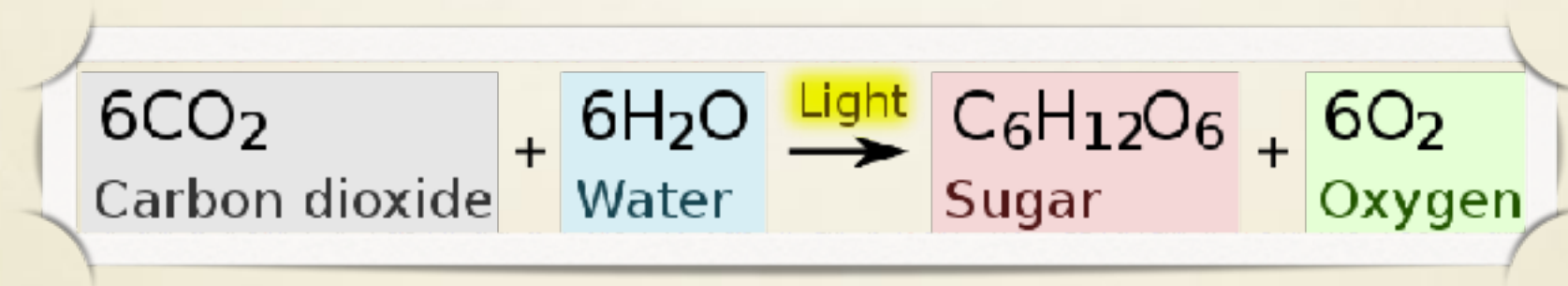
Inside the chloroplasts, the water and carbon dioxide undergo a complex series of chemical reactions and produce two important products of photosynthesis: sugar and oxygen.



Plant cells use sugar for food and to make other compounds, such as cellulose. Plant cells also store sugar for later use. Oxygen exit the leaf through the stomata.

THE PHOTOSYNTHESIS EQUATION

Almost all of the oxygen in Earth's atmosphere was produced by living things through photosynthesis. The events of photosynthesis can be summed up by the following chemical equation:



KEYWORD: ENGLISH - SPANISH

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Chlorophyll - Clorofila

